Investigation of the tempering of hardened steel by using the method of internal friction.

characterising the relaxation process which accompanies the separation of carbon from the solid solution of α-iron during tempering. This peak increases with increasing carbon content and decreases with increasing tempering temperature.
There are 6 figures, 2 tables and 5 references, 3 of which are Slavic.

SUBMITTED: May 12, 1956.

ASSOCIATION: Moscow Steel Institute. (Moskovskiy Institut Stali).

AVAILABLE: Library of Congress.

Card 2/2

reports of an Inter-vuz Conference on Relaxation Phenomena in Pure Metals and Alloys SOV-3-58-9-25/36
2-4 Apr 1958, at Moscow Inst. of Steel.

manganese and molybdenum. I.N. Chernikova (Moscow Institute of Steel), B.G. Livshits and N.G. Makhukov (Moscow Institute of Steel and Groznyy Petroleum Institute) told of processes of annealing in different alloys. Reports on the internal friction of "metastable" solid solutions were delivered by B.G. Livshits, Yu.S. Avraamov, S.O. Mezhennaya, V.B. Osvenskiy, and L.N. Belyakov (Moscow Institute of Steel). G.M. Ashmarin (Moscow Institute of Steel) reported on the temperature dependence of internal friction of iron alloys with vanadium. The reports of K. Mishek and K. Toman (Institute of Technical Physics of the Czechoslovakian Academy of Sciences, Prague), G.K. Mal'tseva and V.S. Postnikov (Kemerovo Pedagogical Institute) were devoted to the decomposition of supersaturated solid solutions. L.F. Usova (Moscow Institute of Steel), A.V. Grin', V.A. Pavlov (Institute of Physics of Metals USSR AS in Sverdlovsk), R.S. Lebedev and V.S. Postnikov (Kemerovo Pedagogical Institute), O.I. Datsko, R.I. Garber, T.T. Mogil'nikova (the latter two of the Physico-Technical Institute, UkrSSR AS in Khar'kov) and N.S. Borisov and V.M. Rozenberg (Institute for the Science of Metals and Physics of Metal TsNIIChM) delivered reports on a number of related subjects. S.O. Tsobkallo (Leningrad Polytechnical

Card 3/4

CHERNIKOVA, I.N., Cand Tech Sci--(diss) "Study of the processes of tempering carbon steel by the method of internal friction." Mos, 1958. 14 pp (Min of Higher Education USSR. Mos Order of Labor Red Banner Inst of Steel im I.V. Stalin), 120 copies (KL, 25-58, 115)

Chernikova, I. N.

20-2-21/60

AUTHORS: Skakov, Yu. A. , Chernikova, I. N. , Sharshatkina, A. V.

TITLE: On Structure and Composition of Carbide in Low-Drawn Steel (O strukture i sostave karbida nizkootpushchennoy stali)

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 2, pp. 284 - 285 (USSR)

ABSTRACT: First there is a short reference on previous studies, dealing with the same subject. The authors examined by electronographical ways, the drawing of carbonaceous steel of the following composition (in %): 0,58 % C, 0,10 % Mn, 0,08 % Si, 0,033 % S, 0,005 % P and 0,017 % N. The samples were chilled in water and drawn at the temperatures of 100, 200 and 400°C. After careful metallographical preparations of the test-pieces and with application of a deep-going electrolytic pickling (in aqueous solution of KCl with addition of citric acid), the electronograms were taken "on reflection". In the case of the test-pieces, which were drawn at 100°C, satisfactory electronograms could not be obtained. The results, which were obtained after drawing at 200° and 400° are illustrated in two diagrams and in one table. The carbide of the low-drawn

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On Structure and Composition of Carbide in Low-Drawn Steel

steel has a hexagonal lattice with a tight packing of the atoms of iron; the lattice unit has the dimension a = 2,73 Å and c = 4,34 Å. In case of drawing at 200° probably a small quantity of cementite results. After drawing at 400° there practically is no more hexagonal carbide. In the electronogram of hexagonal carbide the reflections with the indices (001) and (hkl) with h + k = 3n, if l ≠ 2n, i.e. the structure of carbide is exactly one of the structures of the ε -phase of the system iron-nitrogen, are missing. The non-metallic atoms statistically are orientated equally in the octahedral pores of the hexagonal compact lattice, which is formed by the iron atoms. Such a structure can form in a large range of concentration and the formula Me_2X is valid for the limits of the percentage of the non-metallic component. Further the authors geometrically computed the carbon content in the carbide of low-drawn steel and they found for "ε - carbide" a carbon content of about 16 atom per cent. The calculation, based upon the change of the period a, gives a percentage of 18 % C. Therefore can be assumed that the composition of the "ε - carbide" nearly is described by the formula Fe_4C. There are 2 figures, 1 table, and 7 references,

On Structure and Composition of Carbide in Low-Drawn Steel

5 of which are Slavic.

ASSOCIATION: Institute for Steel imeni I. V. Stalin, Moscow (Moskovskiy institut stali im. I. V. Stalina)

PRESENTED: July 19, 1957, by G. V. Kurdyumov, Academician

SUBMITTED: July 5, 1957

AVAILABLE: Library of Congress

Card 3/3

Chernikova, I N.

AUTHOR: Chernikova, I. N. 126-1-32/40

TITLE: Study of the processes of tempering by means of the method of internal friction. (Izucheniye protsessov otpuska metodom vnutrennego treniya).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.1, pp. 176-177 (USSR)

ABSTRACT: Study of the internal friction in metals and alloys is a very sensitive method for detecting structural changes (Ref.1). The author of this paper applied the method for studying the tempering of hardened steel. He investigated the temperature characteristic of attenuation of torsional oscillations of small amplitudes on wire specimens 3 to 5 mm long and 0.7 mm dia., whereby the frequency of the free torsional oscillations amounted to about 1 c.p.s. In Fig.1 the temperature dependence of the internal friction is graphed for specimens hardened to obtain martensite with various carbon contents, i.e. 0.015, 0.035, 0.46 and 0.58 wt.% (Ref.2). The magnitude of the peak at 200°C is proportional to the carbon content. After a one hour tempering at 100, 200, 300, 400, 500 and 600°C the level of the peak is reduced for the specimens

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Study of the processes of tempering by means of the method of internal friction.

containing 0.35, 0.46 and 0.58 wt.% C. Steel with 0.015% C, which does not have a martensitic state, does not comply with the here mentioned relation. For this steel no peak was observed at 200°C neither in the hardened state nor after subsequent tempering. This indicates that the decrease of the peak at 200°C in hardened steel during tempering is caused by a reduction of the carbon content in the solid solution during the formation of a carbide phase. The correctness of this assumption was verified by electron diffraction measurements and also by studying the coercive force. Separation of the carbon from the solid solution brings about an increase of the bond force of the α-iron lattice (Ref.3) and, consequently, the activation energy of carbide formation should also increase. The magnitude of the activation energy, determined by means of the method of the shift of the internal friction curve by changing the frequency of the torsional oscillations (Ref.4) are entered in the table herewith.

Study of the processes of tempering by means of the method of internal friction. 126-1-32/40

Carbon content, wt.%	Hardening. Activation Energy H, cal/g atom.	Tempering at 250°C.
0.58	28000	56000
0.35	22500	51000

In Fig.1 the temperature characteristic of the internal friction of hardened steel is graphed, whilst in Fig.2 the influence of the tempering temperature of the hardened steel on the internal friction peak at 200°C is graphed.
There are 2 figures, 1 table and 4 references, 2 of which are Slavic.

(Note: This is a complete translation).

SUBMITTED: October 22, 1956.

ASSOCIATION: Moscow Steel Institute. (Moskovskiy Institut Stali).

AVAILABLE: Library of Congress.

Card 3/3

CHERNIKOVA, I. N.

PHASE I BOOK EXPLOITATION SOV/5305

Moscow. Institut stali

Relaksatsionnyye yavleniya v metallakh i splavakh; trudy Mezhvuzovskogo soveshchaniya (Relaxation Phenomena in Metals and Alloys; Transactions of the Inter-Institute Conference) Moscow, Metallurgizdat, 1960. 326 p.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR and Moskovskiy institut stali imeni I.V. Stalina.

Ed. (Title page): B.N. Finkel'shteyn; Ed. of Publishing House: Ye.I. Levit; Tech. Ed.: A.I. Karasev.

PURPOSE: This collection of articles is intended for personnel in scientific institutions and schools of higher education and for physical metallurgists and physicists specializing in metals. It may also be useful to students of these fields.

COVERAGE: The collection contains results of experimental and theoretical investigations carried out by schools of higher education and scientific research institutions in the field of the relaxation phenomena in metals and alloys. Several articles are devoted to the investigation—by the internal-friction method—of the decomposition of supersaturated solid solutions. Also analyzed are the defects of the crystalline lattice, plastic deformations, high-temperature behavior of alloys, and creep. Problems of the relation between internal friction and temper brittleness, the use of the method of internal friction in the investigation of powder-metallurgy products, and the mechanics of impact fatigue are discussed. The collection also contains articles on the damping characteristics of materials, elastic after-effect, and the new slow-detection method. No personalities are mentioned. References follow most articles. There are 366 references: 192 Soviet and 174 non-Soviet.

Buris, R.A. [Moscow Steel Institute]. On Dispersion Correlations in the Theory of Elastic Relaxation 55

Starodubov, K.F., and A.A. Sazonova [Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)]. Effect of the Tempering Temperature After Quenching and the Temperature of Isothermal Processing on the Vibration Damping in the Silicon Spring Steel 58

Piguzov, Yu.V., M.P. Alekseyenko, and L.S. Fedotova [Moscow Steel Institute and Vsesoyuznyy institut aviatsionnykh materialov (All-Union Institute of Aviation Materials)]. Effect of the Temper Brittleness of High-Chromium Steels on the Internal Friction 64

Chernikova, I.N. [Moscow Steel Institute]. Study of the Tempering of Carbon Steels by the Internal-Friction Method 85

Krishtal, M.A., and S.A. Golovin [Tul'skiy mekhanicheskiy institut (Tula Mechanical Institute)]. On the Problem of the Internal Friction in Hardened and Tempered Steel 95

Krishtal, M.A., and S.A. Golovin [Tula Mechanical Institute]. Relative Damping of Torsional Vibrations in Heat-Treated U7A steel 101

Mišek, Karel, and Karel Toman [Institute of Technical Physics of the Czechslovak Academy of Sciences]. Aging of the Aluminum-Silver Alloy 104

Mal'tseva, G.K., and V.S. Postnikov [Kemerovskiy pedagogicheskiy institut (Kemerovo Pedagogical Institute)]. Decomposition of the Supersaturated Beryl-Copper Solid Solution 109

Polyakov, S.N. [Institut chernoy metallurgii AN UkrSSR (Institute of Ferrous Metallurgy of the Academy of Sciences UkrSSR)]. Behavior of Carbon in α-Iron Alloyed With Manganese and Molybden 118

Livshits, B.G., Yu.S. Avraamov, V.S. Cavenskiy, S.O. Mezhennaya, and L.N. Belyakov [Moscow Steel Institute]. Internal Friction of Metastable Solid Solutions 126

Usova, L.F. [Moscow Steel Institute]. Investigation of the Carbon Influence on the Properties of Low-Carbon Steel by the Method of Measuring Internal Friction 138

Ashmarin, G.M. [Moscow Steel Institute]. The High-Temperature Internal Friction of Iron-Vanadium Alloys 146

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1.1710

25439
S/137/61/000/006/066/092
A006/A101

AUTHOR: Chernikova, I.N.

TITLE: Investigating the tempering of carbon steels by the method of internal friction

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1961, 20, abstract 6Zh141 ("Relaksats. yavleniya v metallakh i splavakh", Moscow, Metallurgizdat, 1960, 85 - 94)

TEXT: Temperature changes of internal friction and of the modulus of shift, activation energy, H_c, electric resistivity and the electron diffraction pattern of tempering were investigated at about 1 cycle oscillation frequency on steel wire specimens, containing (in %): C 0.015 - 0.58; Si 0.02 - 0.08; Mn 0.06 - 0.10; Al about 0.12 and N up to 0.019. The specimens were quench-hardened to martensite and tempered at 100 - 500°C. A reduction of the internal friction peak at 200°C with higher tempering temperatures is connected with escape of C atoms from the stressed α-Fe lattice and relieving of stresses. In the 500°C range

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Investigating the tempering of carbon steels ... S/137/61/000/006/066/092
A006/A101

coagulation of carbides was observed. The author shows the applicability of the internal friction method to the study of tempering processes. There are 9 references.

L. Vul'f

[Abstracter's note: Complete translation]

Card 2/2

TRUBIN, V.N.; CERNICHOVA, I. J. CHERNIKHOVA, I. YA.

Effect of heat treatment conditions on the anisotropy of mechanical properties of freely forged steel. Strej vyr 10 no. 3:131-134. '62

SOV/126-7-1-21/28

AUTHORS: Tekht, V.P. and Chernikova, I. Ye.

TITLE: X-Ray Investigation of Fatigue by the Independent Standard Method (Rentgenograficheskoye issledovaniye protsessa ustalosti metodom nezavisimogo etalona)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 1, pp 142-145 (USSR)

ABSTRACT: Steel St.35 as normalized and subsequently tempered at 700°C was used for the investigation. After final mechanical working the specimens were given a supplementary tempering at 650°C. The fatigue limit and mechanical properties of the specimens in the original condition are given in the table on p 142. Fatigue tests were carried out, using two-directional bending under cyclic stress. After an even number of cycles the test was discontinued and the specimens removed from the machine. X-ray photographs were taken of each specimen at various stages of fatigue. The chamber was provided with an aluminium standard made in the shape of a disk with radial slits. The standard was placed on the axis of an electric motor and put in the path of the primary beam of rays.

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X-Ray Investigation of Fatigue by the Independent Standard Method

As the standard rotated the X-rays alternately fell on the specimen and on the standard, giving in the X-ray film the lines $(310)_{\alpha}$ and $(220)_{\alpha}$ for the investigated specimen, and the standard lines $(420)_{\alpha}$ and $(331)_{\alpha}$. The X-ray films obtained were photometered at a magnification of x 8. The intensity of the lines was determined at first by the magnitude of maximum blackening, but afterwards, when the width of the lines during the fatigue process remained unaltered, by the height of the peak in the photometric curves. Whilst the intensity of the interference line $(310)_{\alpha}$ remains practically unaltered with increase in the number of cycles (see Fig.1), the intensity of the line $(220)_{\alpha}$ constantly increases and attains a maximum value up to fracture (see Fig.2). By the behaviour of the above two lines the relative intensity I_{310}/I_{220} curve is determined. The relative intensity decreases with increase in the number of cycles (see Fig.3). The authors have arrived at the following conclusions:-

X-Ray Investigation of Fatigue by the Independent Standard Method

(1) In the fatigue process a change in mosaic structure is observed apart from tertiary distortions which arise in the crystal lattice of the metal.
(2) The method of relative intensity of I_{310}/I_{220} does not give the correct picture of changes occurring during fatigue in the atomic structure of a metal; hence, this method should not be used.
(3) The independent-standard method makes it possible to detect not only distortions arising in the crystal lattice, but also changes which have occurred in the mosaic structure of the metal.
There are 3 figures, 1 table and 7 Soviet references.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: April 1, 1957

TALALAYEVA, Ye. V.; CHERNIKOVA, L. A.; GALKINA, O. S.

Electric resistance of film type and solid gadolinium specimens in the temeprature range 2°-290° K. Vest.Mosk.un Ser.3:Fiz., astron.19 no. 2:82-84 Mr-Ap '64. (MIRA 17:5)

1. Kafedra molekulyarnoy fiziki Moskovskogo universiteta.

CHERNIKOVA, L. A. and POPZOV, N.

"The Connection Between the Magnetization and Hysteresis Curves of Polycrystaline Ferromagnetic Bodies," Journal of Physics, USSR Acad Sci, 10, No.1, 1946

Moscow State U.

CHERNIKOVA, L. A.

"Investigation of the Theoretical Magnetization Curves of Soft Polycrystalline Ferromagnetic Metals." Thesis for degree of Cand. Physicomathematical Sci. Sub 11 May 49, Moscow Order of Lenin State U imeni M. V. Lomonosov.

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949

USSR/Physics - Ferromagnetism Apr 51

"Study of Ideal Magnetization Curves of Soft Polycrystalline Ferromagnetics," L. A. Chernikova, Moscow State U - Magnetics Lab., Sci Res. Inst. Physics.

"Zhur Eksper i Teoret Fiz" Vol XXI, No 4, pp 514-523

Investigates dependence of these curves on chem compd, thermal treatment, temp and strain of Armco-iron and nickel. Compares exptl ideal curves with theoretical ones, computed by Kondorskiy's formulas for monoaxial and multiaxial ferromagnetics. (cf. "Zhur Eksper i Teoret Fiz" 7, 1117, 1937; "J of Phys USSR" 6, 93, 1942). Tests new differential method for curve measurement.

LC

CHERNIKOVA, L. A., GALKINA, O. S., and KONDORSKIY, E. (Moscow)

"The Galvanomagnetic Effects in Nickel and Nickel Alloys at the Low temperature (2÷ 20°K)," paper presented at the International Conference on Physics of Magnetic Phenomena, Sverdlovsk, USSR, 23-31 May 1956.

CHERMIKOVA, L.A.

AUTHORS: Kondorskiy, Ye. I., Galkina, O. S., Chernikova,

TITLE: The Electric Resistance and Its Modifications in the Magnetic Field and in Nickel Alloys at Low Temperatures (Elektricheskoye soprotivleniye i yego izmeneniye v magnitnom pole u splavov nikelya pri nizkikh temperaturakh)

PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz., 1957, Vol. 21, Nr 8, pp. 1123-1130 (USSR)

ABSTRACT: The task to be accomplished by this paper was to investigate the specific electric resistance and its deviations in the magnetic field in the case of nickel and its alloys with copper, chromium, and manganese at temperature of 2 to 4.2 and 14 to 20.4 K. The present work intends to re-examine the theories concerning anomalies of electric conductivity of ferromagnetic alloys, and the further development of knowledge of this field. Such scientific papers as deal with this subject are here described as unsatisfactory. Existing scientific treatises concerning this field by the scientists: Meisnet and Voygt, Smit, Kondorskiy and Ozhigov, Mazumoto and Shirakava are mentioned, but it is said in this connection that the problems raised by the present paper have hitherto not been [illegible]th. In the chapter dealing with Measuring Methods it

48-8-12/25

The Electric Resistance and Its Modifications in the Magnetic Field and in Nickel Alloys at Low Temperatures.

said that the measurements concerned were here carried out according to the potentiometrical method and by means of a potentiometer made by the Krasnodar works; The samples were annealed in form of thin wires of o,1-o,2 mm Ø at a temperature of 900° during a time of 1-12 hours in the atmosphere of the neutral gas. Some samples were hardened at 900° in air or water. In the chapter dealing with the Electric Resistance of Nickel and its Alloys with Copper it is said that the corresponding diagrams in the range of temperature of 2-2o.4°K showed step-like curvatures, which may be explained by the presence of an extremely small component of high conductivity. In the course of further research work they had to be taken into account when dealing with the range of hydrogen and helium temperatures. The result is here given in form of the empirical formula $\varrho_T = \varrho_o + \alpha T^n$. In the chapter dealing with the Modification of Electric Conductivity of Nickel and its Alloys with Copper in a Strong Magnetic Field it is said that in nickel and its alloys with copper and a proportion of 5.1o and 25%, resistance is only to very low degree dependent on temperature at 4.2÷2o,4°K, but that, in the case of alloys with 15 and 2o% copper content and at a temperature of 2÷3oo° the decrease of the resistance was determined according to

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The Electric Resistance and Its Modifications in the Magnetic Field and in Nickel Alloys at Low Temperatures.

the increase of temperature. In the chapter dealing with Modifications of the electric resistance in Ni-Mn alloys becoming "ordered" it is said that the value R_T/R_T of the doma orientation in the longitudinal magnetic field diminishes in the case of the aforementioned Ni-Mn alloys. At the temperature of liquid helium this value increases to six times the value it has at a temperature of 283°K in the case of a hardened alloy. In the case of Ni_3Mn samples this value at first rises after cooling of longer duration with the rising of the field, but it then decreases again, and in the case of strong magnetic fields and temperatures of between 195 and 283°K it even becomes negative. The coefficient characterizing the inclination of the curves of this value from the field is reduced according to the extent of the decrease of the temperature, and therefore this value changes its sign at low temperatures and particularly strong fields. There are 11 figures, 1 table, and 11 references, 5 of which are Slavic.

ASSOCIATION: Dept. of Physics of Moscow State University imeni M.V.Lomonosov (Fizicheskiy fakultet Moskovskogo gos.universiteta imeni M.V.Lomonosova)

AVAILABLE: Library of Congress.

Card 3/3

by measuring the pressure. The curves of the temperature dependence of the specific electric resistance ϱ of iron, nickel, and nickel-copper alloys are illustrated in a diagram. Some curves of this kind contain steps in the temperature range from 3 to 10° K. These steps as a rule are smaller with the annealed samples than with the quenched ones. The specific resistance ϱ was represented as a power series: $\varrho(T)=\varrho_0+\alpha T+\beta T^2+ \ldots$. Two diagrams illustrate the functions of $(\varrho-\varrho_0)/T$ versus T and of $\ln(\varrho-\varrho_0)$ versus ln T. For the first function the deviations from the straight line begin at $T > 30^\circ K$. In the interval $4 < T < 18^\circ K$ the temperature dependence of the electric resistance can be described by 3 terms of the above mentioned power series or by the formula $\varrho = \varrho_0 + aT^m$. For all samples the exponent is close to 3/2. At temperatures above 20 - 30° K probably a law of the T^5 type is valid. In the interval $4 < T < 77^\circ K$ the temperature dependence can be described by the formula $\varrho=\varrho_0+\alpha T+\beta T^2+\gamma T^\ell$ or $\varrho=\varrho_0+aT^m+bT^n$, where ℓ and n are close to 5. Another diagram illustrates the dependence of the remanent resistance ϱ_0 on the

The Electric Resistance of Iron, Nickel, and Nickel-Copper Alloys at Low Temperatures SOV/56-34-5-3/61

copper concentration in the nickel-copper alloys for quenched and annealed samples. Upto 25% copper this dependence is linear. There are 7 figures, 1 table, and 14 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 6, 1957

1.Iron--Resistance 2.Nickel--Resistance 3.Copper-nickel alloys --Resistance 4.Metals--Temperature factors

Card 3/3

24.2130

65708
SOV/139-59-2-7/30

AUTHORS: Chernikova, L.A. and Chermushkina, A.V.

TITLE: The Electrical Resistance of the Alloy Fe_3Al and its change in a Magnetic Field

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 2, pp 43-47 (USSR)

ABSTRACT: The aim of the present work was to study the effect of structural changes in the above alloy on the electrical resistance and the longitudinal galvanomagnetic effect. The latter effect was studied using a specimen of the alloy containing 14% of Al by weight. The specimen was in the form of a thin plate, 0.21 x 3.2 x 170 mm in size. It was heated to 900°C in a vacuum for 24 hours. The initial unordered state was achieved by quenching the specimen in water after heating at 800°C for 1 hour. In order to obtain states of different order, the specimen was heated to temperatures in the interval 250 to 700°C for various lengths of time. The electrical resistance was then measured by a potentiometric method. The change in the electrical resistance in a longitudinal magnetic field was measured by the ratio $\Delta R_T/R_T$ where ΔR_T is the change in the absolute magnitude of the electrical

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The Electrical Resistance of the Alloy Fe_3Al and its Change in a Magnetic Field

resistance in the magnetic field at a temperature T, and R_T is the resistance at this temperature. Measurements of this ratio at room temperature, using a specimen cooled down from 800°C and annealed at 300°C for various lengths of time, are shown in Fig 1. Analogous curves were obtained for other annealing temperatures. Fig 2 shows the dependence of this ratio on the magnetic field for a specimen cooled down from 800°C and then annealed at 300, 360 and 400°C for 24, 10 and 5 hours respectively. Fig 3 shows the dependence of the above ratio on the magnetic field at temperatures of 4.2, 78 and 287°K for a specimen cooled down from 800°C in water and a specimen cooled down from the same temperature at a controlled rate of 25° per hour. The latter case is indicated by crosses and the former by open circles. As shown, the magnetic field was in the range 0 - 3000 oersted. It was established that the quantity $\Delta R_T/R_T$ is negative in the above field interval and its absolute magnitude increases as the temperature decreases. It is shown further that as the degree of order increases, the

The Electrical Resistance of the Alloy Fe_3Al and its Change in a Magnetic Field

ratios $\Delta R_T/R_T$ and $\Delta R_s/R_T$ increase in their absolute magnitude and d/dH $(\Delta R_T/R_T)$ also increases. The quantity $\Delta R_s/R_T$ is the relative change in the resistance on magnetization up to saturation. The electrical resistance of this alloy does not decrease below helium temperatures. It is found that the galvanomagnetic effect is more sensitive to structural changes than the electrical resistance. Fig 6 shows a plot of log τ against $1/T$, where τ is the relaxation time and T is the annealing temperature in °K. The activation energy calculated from experimental data shown in Fig 6 was found to be 30 kcal/mole. Ye.I.Kondorskiy is thanked for discussing results reported in this paper. There are 6 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy gosuniversitet imeni M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

SUBMITTED: July 7, 1958

Card 3/3

GALKINA, O.S.; CHERNIKOVA, L.A.

Relation between the temperature dependence of the electric resistance at low temperatures and the galvanomagnetic effect in strong magnetic fields. Zhur. eksp. i teor. fiz. 38 no.1:3-6 Jan '60. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet.
(Electric resistance) (Magnetic fields)

CHERNIKOVA, L.A.

82032
S/056/60/038/02/50/061
B006/B014

24.5600

AUTHORS: Kondorskiy, Ye. I., Galkina, O. S., Chernikova, L. A.

TITLE: The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 646-648

TEXT: In a previous paper (Ref. 1) the authors have shown that in the case of nickel the ratio $\Delta\varrho/\Delta I$ ($\Delta\varrho$ - change in resistivity with a change of magnetization by ΔI due to a magnetic field in saturation range) is approximately equal to the ratio $(\varrho_T-\varrho_0)/(I_0-I_T)$. ϱ_T and I_T denote resistivity and/or saturation magnetization at $T < 20^0K$, ϱ_0 is the residual resistivity, and I_0 denotes saturation magnetization on extrapolation for the absolute zero. It was further assumed that $\varrho_T - \varrho_0 = aT^{3/2}$ (a - a proportionality factor) held for iron and nickel

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The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

at and below the temperature of liquid hydrogen and $\varrho_T - \varrho_0 - aT^{3/2} \sim T^5$ above the temperature of liquid hydrogen. The authors concluded that within the range of the temperatures of liquid hydrogen and helium the resistivity growth with rising temperature depends essentially on the resulting increase in non-homogeneity of the magnetic moments of the crystal lattice and, above the temperature of liquid hydrogen, on the amplification of thermal vibrations. Consequently, a maximum of resistivity may be expected in the range of Curie temperature where fluctuations of the magnetic order occur, especially if the Curie temperature is in the temperature range of liquid hydrogen. This possibility was first pointed out by M. A. Krivoglaz and S. A. Rybak. The existence of this maximum was experimentally proved by the writers of the present "Letter to the Editor". Samples of copper-nickel alloy (58 and 59.25% Cu) whose Curie points were below 20°K, were used for the purpose. The experimental technique is described in Ref. 1. The accompanying diagram shows resistivity as a function of temperature. The sample containing 59.25% of Cu, whose Curie point was near the temperature

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The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

of liquid helium, had the most distinctly marked maximum. In the case of this alloy, the maximum of $\rho - \rho_0$ amounted to 0.7 per cent of ρ_0.

These maxima are flattened when a magnetic field is applied. Thus, the assumptions made in the preceding paper were confirmed. There are 1 figure and 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 27, 1959

Card 3/3

GALKINA, O.S.; CHERNIKOVA, L.A.; FONTON, S.S.

Magnetic anisotropy of ferronickel single crystals at temperatures of 4.2°, 78°, and 293°K. Vest. Mosk. un. Ser. 3: Fiz., astron. 16 no.5:48-51 S-O '61. (MIRA 14:10)

1. Kafedra magnetizma Moskovskogo gosudarstvennogo universiteta.
(Iron-nickel alloys--Magnetic properties)

247700 1136 1043 1144

31772
S/056/61/041/006/013/054
B113/B104

AUTHORS: Galkina, O. S., Chernikova, L. A., Chang K'ai-ta Kondorskiy, Ye. I.

TITLE: Electric properties of thin nickel films at low temperatures

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1763-1766

TEXT: The authors studied the electric and galvanomagnetic properties of highly pure nickel films of at least 30 Å thickness, and compared them with the corresponding properties of bulk specimens. The films were obtained by evaporation in vacuum (10^{-7} mm Hg) inside a balloon immersed in liquid helium. The temperature dependence of the electric resistivity was studied on films of 1300-30 Å thickness at temperatures of 2-300°K. It was shown that the resistivity ϱ of films of 50 and 135 Å thickness was near the resistivity of bulk nickel. ϱ sharply increases as the vacuum deteriorates. ϱ of thick films grows to the 1.5-2 fold, that of thin films by about one order of magnitude. The temperature dependence of R_T/R_τ of annealed films of different thicknesses indicates the relative change

Card 1/2

Electric properties of thin ...

with a temperature increase; it is almost linear, and the faster, the thicker the film is. R_T is the resistivity at the temperature, T, R_τ the resistivity at helium temperature. Further studies showed that ϱ did not depend on the thickness in films of 1300 to 300-400 Å thickness, and increased slightly with decreasing thickness as from 300-30 Å thickness. When studying the Hall effect it was found that the Hall field corresponded to the bulk specimen for films of 1300-835 Å thickness at room temperature. In films of 50 Å thickness, the Hall field increased due to the increase in resistivity. A. I. Shal'nikov is thanked for advice and assistance, and Yu. Durasova for determining the thickness of films. There are 5 figures and 3 references: 1 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: C. A. Neugebauer, Structure and Properties of Thin Films, by C. A. Neugebauer, T. B. Newkirk, B. A. Vermilyea, N. Y., 1959, p. 358.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 1, 1961

Card 2/2

ACCESSION NR: AP4033639 S/0188/64/000/002/0082/0084

AUTHOR: Talalayeva, Ye. V.; Chernikova, L. A.; Galkina, O. S.

TITLE: Electrical resistance of gadolinium films and massive specimens in the temperature range 2-290K

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 2, 1964, 82-84

TOPIC TAGS: magnetic phase transition, Curie point, molecular physics, gadolinium, gadolinium electrical resistance, rare earth

ABSTRACT: The rare earth metals of the yttrium subgroup have two characteristic temperatures, Θ_1 and Θ_2, corresponding to two magnetic phase transitions. Below Θ_1 the temperatures these metals are in a ferromagnetic state, and above (to Θ_2) -- in an antiferromagnetic state with a helicoid or similar structure. The temperature Θ_2 is the Curie point. Until recently, however, it had not been established whether gadolinium (a member of the yttrium subgroup) has a Θ_1 transition. In this paper, the authors investigate the temperature dependence of the electrical resistance of massive gadolinium and its films for the purpose of determining the influence of the Θ_1 transition on these curves.

Card 1/7

ACCESSION NR: AP4033639

Electrical resistance was measured by the ordinary potentiometric method. Between 2 and 25K temperature was measured with a gas thermometer and above 25K with a copper-constantan thermocouple. The massive specimen of Gd (purity 99.8%) was 15.7 mm long and had a cross section of 0.47 mm^2. Figure 1 of the Enclosure shows the dependence R_T/R_{Θ_2} of the massive specimen of Gd on temperature (where R_T is resistance at a particular temperature, R_{Θ_2} is resistance at the Curie temperature). At a temperature Θ_1 = 210K there is a small knee, with another near the Curie point of 290.5K. Figure 2 of the Enclosure shows the temperature dependence of the electrical resistance of three fine films (thicknesses of 70, 100 and 180 A) during the heating of newly condensed films from 4.2 to 280K (curves 1, 2, 3) and during cooling to the initial temperature of 4.2K after being held at a temperature of 300K for 40 hours. Figure 3 of the Enclosure shows curves similar to those in Figure 2 for two thick films (380 and 500 A). "In conclusion the authors deeply thank Professor A. I. Shal'nikov for valuable advice and assistance in the work and Professors K. P. Belov and Ye. I. Kondorskiy for discussion of the results". Orig. art. has: 3 figures.

ASSOCIATION: Kafedra molekulyarnoy fiziki, Moskovskiy universitet (Department of Molecular Physics, Moscow University)

Card 2/7

SAVITSKIY, M.S., kand.sel'skokhoz.nauk; CHERNIKOVA, L.K.; ZHUKOVSKIY, P.M., akademik, otv.red.; MARINICH, P.Ye., otv.red.; GRIGOR'YEVA, A.I., red.; TETYUREVA, I.V., red.; GOR'KOVA, Z.D., tekhn.red.

[Manual on field testing of crops; new regionally certified varieties of grain, pulse crops for groats, oilseed and forage crops] Rukovodstvo po aprobatsii sel'skokhoziaistvennykh kul'tur; novye raionirovannye sorta zernovykh, krupianykh zernobobovykh, maslichnykh i kormovykh kul'tur. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1960. 411 p. (MIRA 13:11)

1. Direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta rasteniyevodstva (for Zhukovskiy). 2. Zamestitel' predsedatelya Gosudarstvennoy komissii po sortoispytaniyu sel'skokhozyaystvennykh kul'tur (for Marinich).
(Field crops--Varieties)

NAGDASEVA, A.I., dotsent; CHERNIKOVA, L.P.; GRACHEVA, N.P., kand.med.nauk

Influence of mycerin on disinfection of the conjunctival sac. (MIRA 14:9)
Vest.oft. no.3:33-35 '61.

1. Glaznaya kliniki II Moskovskogo meditsinskogo instituta imeni N.I. Pirogova (zav. kafedroy - prof. N.A. Pletneva) II otdela infektsionnoy patologii i eksperimental'noy terapii infektsii Instituta epidemiologii i mikrobiologii imeni pochetnogo akad. N.F. Gamalei AMN SSSR.
(CONJUNCTIVA) (ANTIBIOTICS)

CHERNIKOVA, L. V.

20070 CHERNIKOVA, L. V. Gigiyenicheskiye trebovaniya k posude pishchevogo naznacheniya. Fel'dsher i akusherka, 1949, No. 6, s. 22-26.

SO: LETOPIS ZHURNAL STATEY, Vol. 27, Moskva, 1949.

CHERNIKOVA, L. V.

5755. Chto nado znat' doyarke. (material v pomoshch' lektory). (Kurgan), 1954. 9s. 21sm. (kurganskoye obl. upr. kul'tury. Lektsionnoye byuro V pomoshch' lektoroui Besedchiku. ype. 6). 2.000 ekz. B. ts.-Bez tit. l. i obl.-(54-57208) 636.2.083+613.6: 637.124

SO: Knizhnaya, Letopis, Vol. 1, 1955

CHERNIKOVA, L.V. (Moskva)

Results of the discussion on the problem of increasing the vitamin content of food in public eating establishments. Vop.pit. 13 no.5:54-57 S-O '54. (MLRA 7:9)
(Vitamins) (Food, Enriched)

CHERNIKOVA, L.V.

All-Union conference on problems of sanitary food control.
Vop.pit.14 no.5:62-63 S-O '55. (MLRA 8:11)
(FOOD ADULTERATION AND INSPECTION)

CHERNIKOVA, Lidiya Vladimirovna; CHERVYAKOVA, L.S., redaktor; SUDAK, D.M., tekhnicheskiy redaktor

[Hygiene and sanitation for public eating establishments] Gigiena i sanitariia v predpriiatiiakh obshchestvennogo pitaniia. Moskva, Gos. izd-vo torgovoi lit-ry, 1956. 143 p. (MLRA 9:7)
(RESTAURANTS, LUNCH ROOMS, ETC.--HYGIENIC ASPECTS)

CHERNIKOVA, L.V.

VLADIMIROV, B.D.; CHERNIKOVA, L.V. (Moskva)

Results of the discussion on the further development and improvement of public eating establishments. Vop.pit. 16 no.2:85-88 Mr-Ap '57. (MLRA 10:10)
(RESTAURANTS, LUNCHROOMS, ETC.)

CHERNIKOVA, L.V., red.

[Course in sanitation training for workers in the food industry, public feeding, and trade; methodological manual for instructors] Kursovaia sanitarnaia podgotovka rabotnikov predpriiatii pishchevoi promyshlennosti, obshchestvennogo pitaniia i torgovli; metodicheskoe posobie dlia prepodavatelei kursov. Moskva, Mosk.pravda, 1958. 77 p. (MIRA 13:9)

(FOOD INDUSTRY--SANITATION)

CHERNIKOVA, L.V., dots.

Making sour milk and kephir. Zdorov'e 5 no.1:30 Ja '59 (MIRA 11:12)
(MILK, FERMENTED)
(KEPHIR)

CHERNIKOVA, L.V.

"Hygiene in public eating establishments" by B.D.Vladimirov. Reviewed by L.V.Chernikova. Vop.pit. 18 no.2:90-91 Mr-Ap '59. (MIRA 12:5)

(FOOD HANDLING) (VLADIMIROV, B.D.)

YARUSOVA, Natal'ya Sergeyevna; CHERNIKOVA, L.V., red.; BALDINA, N.F., tekhn.red.

[Vitamin C (ascorbic acid) and food enriched with Vitamin C] O vitamine C (askorbinovoi kislote) i C-vitaminizatsii pishchi. Moskva, Gos.izd-vo med.lit-ry, 1960. 57 p. (MIRA 13:7)
(ASCORBIC ACID)

CHERNIKOVA, L.V., dots.

Buckwheat groats. Zdorov'e 6 no.1:30 Ja '60. (MIRA 13:4)
(BUCKWHEAT)

CHERNIKOVA, L.V.

Problems in food hygiene at the First All-Russian Congress of Hygienists and Sanitary Physicians. Gig. i san. 25 no. 12:106-107 D '60. (MIRA 14:2)

1. Iz kafedry gigiyeny pitaniya TSentral'nogo instituta usovershenstvovaniya vrachey.
(NUTRITION) (FOOD HANDLING)

SHISHAKOV, Vitaliy Alekseyevich; CHERNIKOVA, M., red.; SILONOVA, G., tekhn. red.

Galileo Galilei. Moskva, Sovetskaia Rossiia, 1964. 36 p. (MIRA 17:3)

LANDAU, Lev Davydovich, akademik; RUMER, Yuriy Borisovich, prof.; CHERNIKOVA, M.S., red.; MARAKASOVA, L.P., tekhn. red.

[What is the theory of relativity] Chto takoe teoriia otnositel'nosti. 2. izd. Moskva, Sovetskaia Rossiia, 1963. 73 p. (MIRA 17:3)

CHERNIKOVA, M.S.

USSR/Zooparasitology - Parasitic Worms. G-2

Abs Jour : Ref Zhur - Biol., No 6, 1958, 24330

Author : Chernikova, M.S.
Inst : -
Title : Strawberry Helminths in Sovkhoz Orchard-Giant (Sad-Gigant)

Orig Pub : Sb. stud. nauchn. rabot. Kubansk. s.-kh. in-t, 1956 (1957) No 1, 49-53

Abstract : Wide-spread strawberry disease is noted (especially of Early Mosvira and Komsomolka) in sovkhoz "Orchard-Giant" in the Slavis region of Krasnodar district, infected by the stalk nematole Ditylenchus fragariae.

Card 1/1

CHERNIKOVA, M.S.

Strawberry stem nematode. Trudy Gel'm. lab. 9:368-369 '59.
(MIRA 13:3)

(Strawberries--Diseases and pests)
(Nematoda)

GOLOVANOV, Yaroslav Kirillovich; ORLOV, Vladimir Viktorovich; CHERNIKOVA, M.S., red.; YELAGIN, A.S., tekhn. red.

[Great figures of a great plan]Velikie tsifry velikogo plana. Moskva, Sovetskaia Rossiia, 1962. 62 p. (MIRA 15:9)
(Communism) (Russia—Economic policy)

GUBAREV, Vladimir Stepanovich; NEPOROZHNIY, Petr Stepanovich; CHERNIKOVA, M.S., red.; POPOV, N.D., tekhn. red.

[Rapid development of electrification] Elektrifikatsiia operezhaiushchaia. Moskva, Sovetskaia Rossiia, 1962. 66 p. (MIRA 15:7)

(Electrification)

PETERBURGSKIY, Aleksandr Vasil'yevich; CHERNIKOVA, M.S., red.;
POPOV, N.D., tekhn. red.

[Prianishnikov and his theories]Prianishnikov i ego shkola.
Moskva, Sovetskaia Rossiia, 1962. 106 p. (MIRA 15:10)
(Prianishnikov, Dimitrii Nikolayevich, 1865-1948)
(Agriculture)

KOSTIKOV, Leonid Matveyevich; CHERNIKOVA, M.S., red.; MARAKASOVA, L.P., tekhn. red.

[A house comes of the production line]Dom s konveiera. Moskva, Izd-vo "Sovetskaia Rossiia," 1962. 91 p. (MIRA 16:3)
(Apartment houses)
(Construction industry--Production methods)

ZUBKOV, Boris Vasil'yevich; MEDVEDEV, Yuliy Emmanuilovich; MUSLIN, Yevgeniy Salimovich; CHERNIKOVA, M.S., red.; KLAPTSOVA, T.F., tekhn. red.

[A hundred inventions] Sto izobretenii. Moskva, Sovetskaia Rossiia, 1963. 295 p. (MIRA 17:1)

KROSHKIN, Mikhail Galaktionovich; CHERNIKOVA, M.S., red.

[The Earth begins in the universe] Zemlia nachinaetsia v kosmose. Moskva, Sovetskaia Rossiia, 1964. 210 p. (MIRA 18:2)

CHERNIKOVA, N. G.

"Experimental Data on the Development of a Method of Diagnosing the Causative Agents of Gas Gasgrene With the Aid of a Serological Reaction." Cand Biol Sci, Acad Med Sci USSR, 13 Jan 55. (VM, 4 Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions(12)
SO: Sum. No. 556, 24 Jun 55

USSR / Microbiology. Microorganisms Pathogenic to Humans and Animals. F-5

Abs Jour : Ref Zhur - Biol., No 20, 1958, No. 90959

Author : Semykina, T. G.; ~~Chernikova, N. G.~~
Inst : Institutes of Vaccines and Sera of the Ministry of Public Health, USSR
Title : Cultivation of Bi perfringens by the Kettle Method

Orig Pub : Materialy po obmenu opytom. Gl. upr. in-tov vaktsin i syvorotok M-va zdravookhr. SSSR, 1956, 2/52, 163-169

Abstract : Successful cultivation of B. perfringens by the kettle method in casein hydrolysate medium of Adams and Hand [?], modification of Vyshepan and Krasnova, yielded 15 - 16 milliard microbial cells in 1 ml after 6 hours of growth. The toxin formed after 4 - 5 hours of growth contained 80 - 160 MLD in 1 ml. Analogous results were obtained with cultivation in gallon bottles. The authors recommend

Card 1/2

Abs Jour : Ref Zhur - Biol., No 20, 1958, No. 90959

the kettle method of cultivation of B. perfringens as a simple technique for acquiring large volumes of toxin. -- Yu. Z. Gendon

CHERNIKOVA, N. I. PA 59/49T7

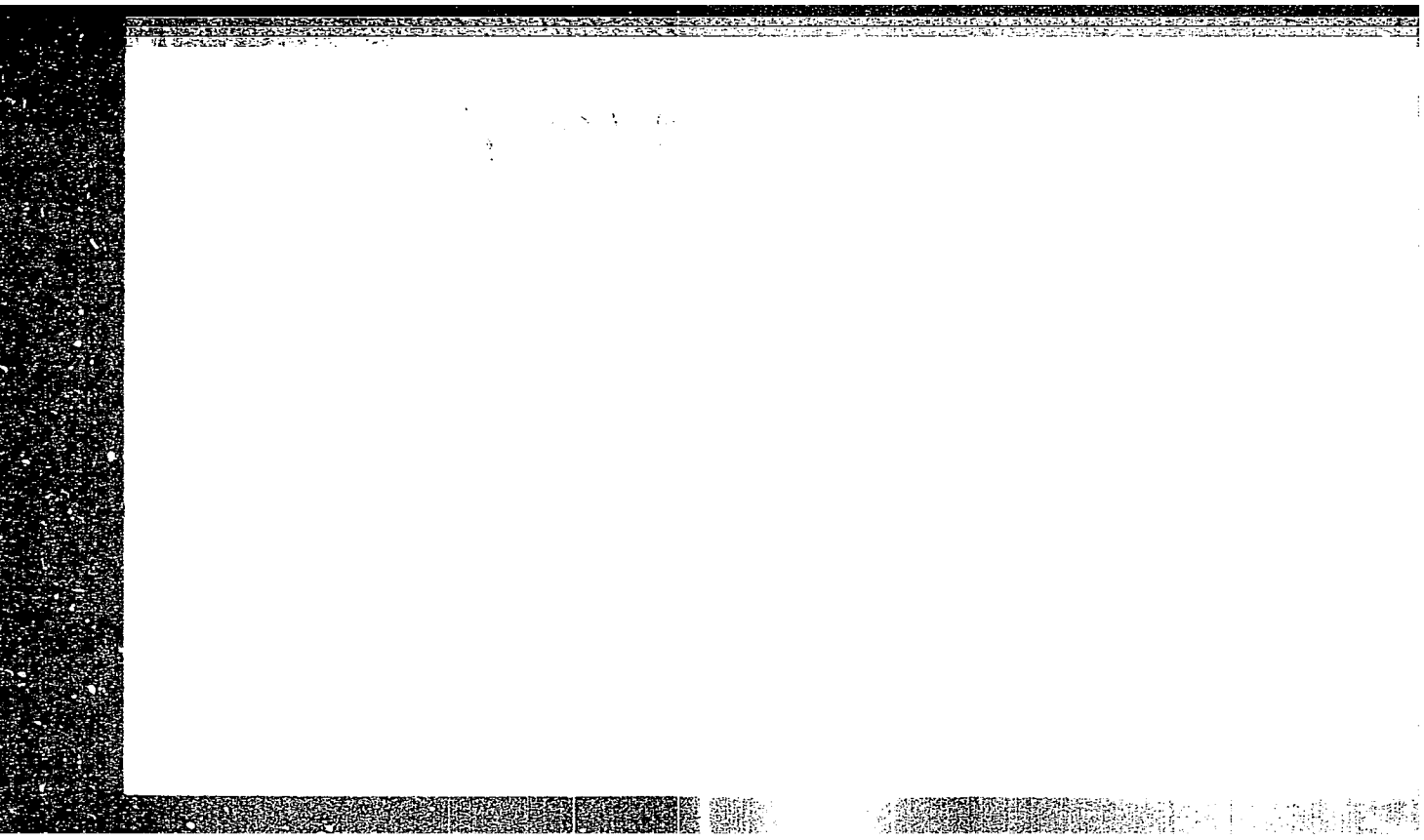
USSR/Engineering Pumps Petroleum Industry Jul 48

"Calorimetric Method for Regulating Successive Repumping,"
V. I. Chernikin, N. I. Chernikiva, 2 pp

"Neft Khoz" No 7

Describes calorimetric method developed in 1946 by Moscow Petroleum Inst which is superior to a float-hydrometer. Based on system of lenses and mirrors which split light source into two beams: one going through standard mixture, the other through Plexiglas apertures in pipe carrying oil product. Both beams converge on one photocell after passing through holes in revolving disk. Deviation from equal light intensity shows up on meter after amplification. Author asks ministries concerned to furnish operating data on new method.

PA 59/49T7



APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308520003-0"

system

$$L_j(x_1,x_2,\ldots,x_n)+a_{jn+1}\geq 0 \qquad (j=1,2,\ldots,m)$$

$$L(x_1,x_2,\ldots,x_n)+(a_{n+1}-\alpha) = 0$$

is compatible for $\alpha = \alpha_m$ and the set of the solutions of

$$L_j(x_1,\ldots,x_n)+a_{jn+1}\geq 0 \qquad (j=1,2,\ldots,m)$$

$$L(x_1,\ldots,x_n)+(a_{n+1}-\alpha_m)\geq 0$$

is identical with the polyhedron M.

ZHMEYDO, A.T.; GRAFSKAYA, Z.S.; CHERNIKOVA, N.V.

Producing "pure" vitamin D deficiency in rats. Vop.pit 21 no.4: 71-74 Jl-Ag '62. (MIRA 15:12)

1. Iz Nauchno-issledovatel'skogo instituta vitaminologii Ministerstva zdravookhraneniya SSSR, Moskva.
(DEFICIENCY DISEASES) (VITAMINS--D)

SOV/137-58-9-18677

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 75 (USSR)

AUTHORS: Bolotov, I.Ye., Kurganov, V.V., Popov, A.A., Fedorov, A.B., Chernikova, N.V.

TITLE: A Study by Autoradiography of the Structure and Kinetics of Ingot Crystallization in Transformer Steel (Izucheniye stroyeniya i kinetiki kristallizatsii slitka tranformatornoy stali s pomoshch'yu avtoradiografii)

PERIODICAL: V sb.: Staleplavil'n. proiz-vo, Moscow, Metallurgizdat, 1958, pp 172-183

ABSTRACT: S^{35} in an Al ampoule was introduced while molds were filled. Autoradiographs were taken of the surface of a large section of the test ingots. Three zones of dendrites, each with a different structure, were found: A zone of columnar dendrites at the surface of the ingot; a zone of very fine and poorly developed dendrites in the middle of the ingot, narrowing toward the top; and, between the central zone and the zone of columnar crystallization, a zone of large and highly-developed dendrites. When the isotope was introduced in batches at different times during pouring, evidence of sequence crystallization of the layer

Card 1/2

A Study by Autoradiography of the Structure and Kinetics (cont.)

appeared. The thickness thereof at the mold wall in the upper portion of the ingot, determined by the autoradiograph, is in agreement with the results of the determination of the thickness of the "skin" of solidified metal by the overturning of analogous ingots. No such agreement exists in the lower portion of the ingot, because in this region the boundaries of distribution of the batches of isotope are ill defined. Thus, the S from the later additions of isotope is unable to penetrate into the lower portions of the ingot, which are still in a liquid or semiliquid state. The authors believe that the semifluid masses of metal concentrate in this region and that, although they are removed from the ingots when the latter are overturned, nevertheless they served as obstacles to the distribution of radioactive S atoms displaced by means of convection currents of liquid metal. This concept is confirmed by experiment.

L.K.

1. Steel--Structural analysis 2. Steel--Crystallization 3. Steel--Radiographic analysis

CHERNIKOVA, N.V. (Sverdlovsk)

Algorithm for deriving a general formula for non-negative solutions to a system of linear inequalities. Zhur. vych. mat. i mat. fiz. 5 no.2:334-337 Mr-Ap '65.
(MIRA 18:5)

KOZMANOV, Yu.D.; KONOVALOVA, T.S.; PETERYUKHINA, A.I.; CHERNIKOVA, N.V.

Scale structure on hot rolled dynamo steel. Metalloved. i term. obr. met. no. 2:19-21 F '65. (MIRA 18:12)

1. Verkh-Isetskiy metallurgicheskiy zavod.

CHERNIKOVA, O. A.

29243 Razdrazheniye vestibulyarnogo apparata i zri-tel'noye vospriyatiye. Uchen. zapiski (Gos. tsentr. in-t fiz. kul'tury im. Stalina), vyp. 4, 1949, s. 104-45. - Bibliogr: 7 nazv

SO: Letopsi' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

TIMOFEYEV, V. N.; KASHTANOVA, S. P.; Prinimali uchastiye: KUZNETSOVA, L. M., inzh.; GERASIMOV, G. I., laborant; CHERNIKOVA, P. I., laborant

Investigating coefficients of heat transfer by convection and of the hydraulic resistance of new checkerwork shapes in blast furnace air preheaters. Sbor. nauch. trud. VNIIMT no.8:68-105 '62. (MIRA 16:1)

(Blast furnaces) (Heat—Convection) (Fluid mechanics)

VESELOVA, N.D.; CHERNIKOVA, R.A.

Practice of Bryansk Worsted Fabrics Works in using a new method of sizing. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. 16 no.10:74-76 '63. (MIRA 16:11)

VESELOVA, N.D.; CHERNIKOVA, R.A.

Use of polyacrylamide in the sizing of combed yarn. Tekst. prom. 24 no.2:39-41 F '64. (MIRA 17:3)

1. Nachal'nik nauchno-issledovatel'skoy laboratorii Bryanskogo kamvol'nogo kombinata (for Veselova). 2. Zamestitel' nachal'nika nauchno-issledovatel'skoy laboratorii Bryanskogo kamvol'nogo kombinata (for Chernikova).

LEVI, M.I.; BASOVA, N.N.; ZUS'MAN, R.T.; CHERNIKOVA, T.M.; SUCHKOV, Yu.G.; RUDNEV, M.M.

Incidence of influenza in Stavropol during the 1957 pandemic. Vop.virus. 4 no.5:573-580 S-O '59. (MIRA 13:2)

1. Nauchno-issledovatel'skiy protivochumnyy institut Kavkaza i Zakavkaz'ya, Stavropol'.
(INFLUENZA, statist.)

CHERNIKOVA, T. M., BASOVA, N. N., SUCHKOV, YU. G., LOPATKIN, O. N.

"Characteristicsof the "Dagestan 273" virus strain isolated from a sand rat." p. 57

Desyatoye Soveshchaniye po parazitologicheskim problemam i prirodnoochagovym boleznyam. 22-29 Oktyabrya 1959 g. (Tenth Conference on Parasitological Problems and Diseases with Natural Foci 22-29 October 1959), Moscow-Leningrad, 1959, Academy of Sciences USSR and Academy of Medical Sciences USSR, No. 1 254pp.

BASOVA, N.N.; CHERNIKOVA, T.M.; SUCHKOV, Yu.G.; LOPATKIN, O.N.

Study of the properties of a virus isolated from a woodcock (Grocethia alba Pall.). Vop.virus. 5 no.3:286-292 My-Je '60. (MIRA 13:9)

1. Nauchno-issledovatel'skiy protivochumnyy institut Kavkaza i Zakavkaz'ya, Stavropol'.

(VIRUSES)

BASOVA, N.N.; CHERNIKOVA, T.M.; SUCHKOV, Yu.G.; RUDNEV, M.M.

Q fever and ornithosis in wild birds. Vop.virus. 6 no.5:586-591 S-O '60. (MIRA 14:7)

1. Virusologicheskiy otdel Nauchno-issledovatel'skogo protivochumnogo instituta Kavkaza i Zakavkaz'ya, Stavropol'.
(Q FEVER) (ORNITHOSIS)

CHERNIKOVA, T.N.

CA

PROCESSES AND PROPERTIES

Chemical processes in the electrodialysis of soils and the adsorption of calcium ions from nonbuffered solutions by electrodialyzed chernozem. A. N. Ivanov and T. N. Chernikova. *Vsesoyuz. Akad. Sel'sko-Khoz. Nauk Trudov, Nauch.-Issledovatel. Inst. Udobrenii, Agrotekh. i Agropochvovedeniya Gedroitsa, Trudy Leningrad. Otdel.* 1938, Pt. 2, 97-108.—The adsorptive capacity of the chernozem tested was reduced by electrodialysis. No mol. adsorption of the electrolyte and no adsorption of ions were detected. The reaction between the dissolved electrolyte and the electrodialyzed soil represented an exchange of cations. Moreover, H and Al ions were present in the equil. soln. After electrodialysis only H^+ and $Al_2O_3H^+$ ions were present in the inner layer of the elec. double layer of the soil micelles. The exchange adsorption of Ca ions by the electrodialyzed soil was conditioned by the displacement of the H^+ and $Al_2O_3H^+$ ions in the intermicellar liquid when the pH was greater than 3. When the pH of the equil. soln. was less than 3, then Al^{+++} ions were present in the soln. The electrodialysis of the soil was accompanied by a hydrolytic splitting off of the aluminosilicates of the soil colloids. The adsorptive capacity of the chernozem for cations was detd. chiefly by its humus content. **The adsorption of calcium ions from buffered solutions by electrodialyzed chernozem.** T. N. Chernikova and E. N. Gapon. *Ibid.* 109-18.—The adsorption of Ca ions by electrodialyzed chernozem was investigated in buffer mixts. of Ca acetate and HOAc. In order to det. the various coeffs. for the exchange capacity, 2 adsorption isotherms were plotted, one at a const. concn. of Ca ions and the other at a const. H-ion concn. Through *Chem. Zentr.* 1940, II, 2502-3.

M. G. Moore

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

CHERNIKOVA, T. N.

USSR/Chemistry - Minerals, Soil
Chemistry - Adsorption, Exchange

Jul 48

"Chromatographic Exchange Adsorption of Cations by Soil Minerals," Ye. N. Gapon, Dr. Chem Sci, T. N. Chernikova, Cand Chem Sci, $2\frac{1}{2}$ pp

Dok v-s Ak Selkhoz Nauk" No 7

Describes studies conducted to determine dynamics of subject exchange adworption. Tests conducted on kaolin and bentonite as soil minerals showed they had characteristics similar to aluminum and permutite oxides as far as chromatographic exchange adsorption was concerned. Localized nature of cation distributionrenews problems on soil adsorption capacity. Submitted 2 Feb 48.

PA 33/49T14

CHERNIKOVA, T. N.

USSR/Chemistry - Sols Mar/Apr 49
Chemistry - Electrolytes

"Distribution of Electrolytes Between the Solid and Fluid Phases: I, Absorption of Silver Sulfate by Iron Hydroxide," T. N. Chernikova, Ye. I. Gapon, All-Union Inst of Fertilizers, Soil Sci and Agrotech imeni K. K. Gedroyts, Moscow, 6 3/4 pp

"Kolloid Zhur" Vol XI, No 2

Iron hydroxide of a dialyzed sol prepared by hydrolysis of iron chloride absorbs silver and sulfate ions. Similar sol prepared by hydrolysis of iron nitrate absorbs sulfate ions but practically no silver ions.

45/49T27

USSR/Chemistry - Sols (Contd) Mar/Apr 49

Similar sol prepared by hydrolysis of iron sulfate absorbs practically no silver ions. Electrodialyzed gels of iron hydroxide absorb practically no silver or sulfate ions. Submitted 6 Jan 48.

45/49T27

ZAMYATINA, V.B.; CHERNIKOVA, T.N.

Soil Moisture

Quick method for determining soil moisture. Sov.agron. 10, no. 10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952~~1953~~. Unclassified.

1. CHERNIKOVA, T. N.

2. USSR (600)

4. Soils - Analysis

7. Way to prepare soil for mechanical analysis Sov. agron. 11 no1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

Chernikova, T.N.

I-3

USSR/Soil Science. Physical and Chemical Properties of Soils.

Abs Jour: Referat Zh-Biol, No 6, 25 March, 1957, 22446

Author : Chernikova, T.N.
Inst :
Title : The Problem of Specific Soil Surface and the Characteristics of Soil in this Aspect.

Orig Pub: Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1956, No 22, 405-411

Abstract: The conclusion based on laboratory experiments is made that the electrochemical method suggested by E.N. Gapon yields 2-3 times greater dimensions of active soil surface by comparison with the method of determining hygroscopic humidity developed by P.I. Andrianov. This divergence can be explained by the different mechanisms of cation and water adsorption. The method of determining the active colloidal surface by hygroscopic moisture is a more sensitive one. It permits detection of small

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USSR/Soil Science. Physical and Chemical Properties of Soils.

Abs Jour: Referat Zh-Biol., No 6, 25 March, 1957, 22446

changes which occur in specific surface dimensions affected by different agrotechnical procedures.

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SOV/58-59-8-17724

Translated from: Referativnyy Zhurnal Fizika, 1959, Nr 8, p 108 (USSR)

AUTHORS: Aleshin, S.N., Ivanov, A.N., Chernikova, T.N.

TITLE: On the Variability of the Surface Tension of Aqueous Solutions of Surface-Active Substances

PERIODICAL: Dokl. Mosk. s. kh. akad. im. K.A. Timiryazeva, 1958, Nr 39, pp 279-282

ABSTRACT: The equation $\Delta\sigma = ZC/K + C$ (where $\Delta\sigma$ is the reduction in the surface tension of the solution, $Z = \sigma_o - \sigma_c$ is the difference between the surface tension of water and that of alcohol, and K is the constant of surface tension) was verified for an aqueous solution of isobutyl alcohol. The estimated and the experimentally verified surface tension at various concentrations were found to be in good agreement.

T.V.Z.

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LISTOV, V.A.; ARTEM, M.V.; SEMENOV, K.A.; KULESHOV, V.D.; CHERNIKOVA, T.P.

Using the OSV-1 unit for determining the stability of the viscosity of thickened oils. Standartizatsiia 28 no.1:29-30 Ja '64. (MIRA 17:1)

CHERNIKOVA, T.V., kand.med.nauk

Treatment of prurlent ulcers of the cornea with sulfazole ointment combined with stimulant therapy of Academician V.P. Filatov. Trudy Izhev.gos.med.inst. 13:276-281 '51. (MIRA 13:2)

1. Iz glaznoy kliniki Izhevskogo meditsinskogo instituta. Direktor - dotsent F.F. Sysoyev.
(CORNEA--ULCERS) (SULFATHIAZOLE) (TISSUE EXTRACTS)

ACC NR: AP7001336 SOURCE CODE: UR/0428/66/000/004/0133/0134

AUTHOR: Chernikova, V.

ORG: none

TITLE: Polish scientists at the Belorussian Academy of Sciences

SOURCE: AN BSSR. Vestsi. Seryya fizika-matematychnykh navuk, no. 4, 1966, 133-134

TOPIC TAGS: scientific conference, physics conference, chemistry conference, nuclear physics conference

ABSTRACT: The Academy of Sciences BSSR held on 12 October a joint scientific session of AN BSSR, the Belorussian State University, the Belorussian Polytechnic Institute, and the Belorussian Society for Friendship and Cultural Relations with Foreign Countries, devoted to Days of Polish Science and Technology. The session was opened by AN BSSR vice-president, Academician K. I. Lukashev. Responding in the name of the Polish scientists was the head of the delegation Tadeusz Dryzek. A paper "Fundamental Trends and Crucial Problems in the Development of Science in the Polish People's Republic in 1966-1970" was delivered by the member of the Presidium of the Polish Academy of Sciences, Professor of the Warsaw Polytechnic Institute, Ignacy Malecki. The deputy chairman of the Committee of Science and Technology of SM PNR, Magister-engineer Jerzy Metera spoke on "Development of Scientific-Technical Base in Poland." Professor Alfons Zelenko of the presium of the Main Administration of Technical Organization of Poland spoke on "Scientific-Technical Collaboration between Poland

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and the Soviet Union." Corresponding member AN BSSR, Doctor of Historical Sciences, Professor N. V. Kaminskaya spoke on "Belorussian-Polish Scientific Relations." The session was closed by Academician K. I. Lukashev who thanked the participants for the papers. After the end of the session, a meeting was held at the Presidium of AN BSSR, where questions of collaboration between the Belorussian and Polish Academy of Sciences were discussed. On 13 October, a scientific seminar of Belorussian and Polish scientists was held at the Institute of Physics AN BSSR. Professor of the Wroclaw University Boguslawa Jerzowska-Czebiatowska and Docent Doctor Adam Bartecki spoke on "Development and Accomplishments in Spectroscopy in the Polish People's Republic," while Doctor Emanuel Walentynowicz spoke on "Research in the Field of Luminescence, Carried out by the Department of Experimental Physics at the Torun University." The Belorussian scientists delivered two papers: "Universal Relations and Molecular Energetics" (Corresponding member AN BSSR N. A. Borusevich) and "Electron Vibrational Spectra of Chlorophyll-like Molecules" (Candidate of Physico-Mathematical Sciences K. N. Solov'yev). On 15 October, the Polish scientists were briefed on the work of the Physicotechnical Institute and the work of the Institute of Physical-Organic Chemistry AN BSSR. At a scientific seminar at the Physical-Organic Chemistry Institute, a paper "Physicochemical Principles of Separating Composite Organic Mixtures" was delivered by Professor Doctor Andrzej Bylicki. Participating in the seminar and discussions were Doctor Emanuel Walentynowicz, Magister-engineer Jerzy Metera, and Magister Jerzy Auerbach. The secretary of the Division of Chemical Sciences, Academician N. F. Yermolenko spoke of the development of

ACC NR: AP7001330

chemistry in the Academy of Sciences BSSR to the Polish scientists. At the Physico-technical Institute, a paper "New Methods and Devices on Metal Processing" was delivered by Doctor Engineer Andrzej Uzarewicz. Magister-engineer Jozef Romanowski (Committee of Science and Technology at the SM PNR) delivered a paper on "New Methods and Equipment for Processing of Metals by Pressure." Participating in the session were Polish scientists Professor Alfons Zelenko and Engineer Stanislaw Karalow. The Belorussian paper was "New Methods for Processing Metals by Cutting" (Corresponding member AN BSSR Professor Ye. G. Konovalov). Particular interest was raised by work on explosive stamping in the manufacture of wagons, cisterns, and bottoms of vessels at PNR. The Polish scientists were particularly interested in work on the study of the fine structure of metals in an electron microscope carried out at the Plasticity Laboratory, headed by AN BSSR Academician V. P. Severdenko. On 17 October the Polish guests visited the atomic reactor of AN BSSR. Academician AN BSSR A. K. Krasin, V. B. Nesterenko, and others acquainted the Polish scientists with work of the reactor. Participating on the part of Poland were deputy of the plenipotentiary of the government of Poland on the use of atomic energy, Magister Jerzy Auerbach, Magister-engineer Tadeusz Podgurski, and Professor Doctor Boguslawa Jerzowska-Czebiatowska.

SUB CODE: 20, 18/ SUBM DATE: 00

Card 3/3

CHERNIKOVA, V.

Friction welding. IUn. tekh. 4 no.10:20-21 O '59.
(MIRA 13:1)
(Welding)

KOLPAKOV, Aleksandr Lavrent'yevich, inzh.-khim.; CHERNIKOVA, V.K., red.

[Metals in organic molecules] Metally v organicheskikh molekulakh. Moskva, Izd-vo "Znanie," 1964. 38 p. (Novoe v zhizni, nauke, tekhnike. XI Seriia: Khimiia, no.4) (MIRA 17:6)

LITVINENKO, Igor' Danilovich; CHERNIKOVA, V.K., red.; RAKITIN, I.T., tekhn. red.

[Electron-economist] Elektron-ekonomist. Moskva, Izd-vo "Znanie," 1963. 36 p. (Novoe v zhizni, nauke, tekhnike. IV Seriia: Tekhnika, no.9) (MIRA 16:7)
(Electronic data processing)
(Electronic computers)

CHERNIKOVA, V.K., red.; RAKITIN, I.T., tekhn. red.

[Automation today and tomorrow] Avtomatizatsiia segodnia i zavtra. Moskva, Izd-vo "Znanie," 1963. 39 p. (Novoe v zhizni, nauke, tekhnike. IV Seriia: Tekhnika, no.11)
(MIRA 16:7)

(Automation)

TRIFONOV, Dmitriy Nikolayevich; [illegible], V.K., red.

[Dispersed elements] Rasseiannye elementy. Moskva, Izd-vo "Znanie," 1964. 39 p. (Novoe v zhizni, nauke, tekhnike. XI Seriia: Khimiia, no.8) (MIRA 17:10)

ZHABROVA, Galina Mikhaylovna, doktor khim. nauk; CHERNIKOVA, V.K., red.

[Catalysis] Kataliz. Moskva, Znanie, 1964. 45 p. (Novoe v zhizni, nauke, tekhnike. XI Seriia: Khimiia, no.6)
(MIRA 17:9)